

Electrical Detection of β -amyloid Based on Scanning Tunneling Microscopy

의진호¹, 강다연¹, 김상욱², 예철현¹, 오병근^{1,2}, 최정우^{1,2,*}

¹서강대학교 화공생명공학과;

²서강대학교 바이오융합기술학과

(jwchoi@sogang.ac.kr*)

The Beta-amyloid 1-40 is most challenging marker for the early diagnosis of Alzheimer disease. In the present study an STM(scanning tunneling microscopy) based electrical detection method for β -amyloid 1-40 was developed. Au nanoparticle and antibody complex was used for this STM based Immunosensor. The frequency of the tunneling current peaks was measured in accordance with the surface density of the dispersed gold nano-particle antibody complex on the gold electrode. As a result a periodgram with its logarithmic regression curve and the change of power spectrum was observed with various concentration of the marker molecule. The lowest detection limit of the developed immunosensor was found to be 1fg /ml. **Acknowledgments:** This research was supported by the Nano/Bio science & Technology Program (M10536090001-05N3609-00110) of the Ministry of Science and Technology (MOST), by Seoul Research and Business Development Program (10816), and by the Korea Government (MOST) (2006-05374).